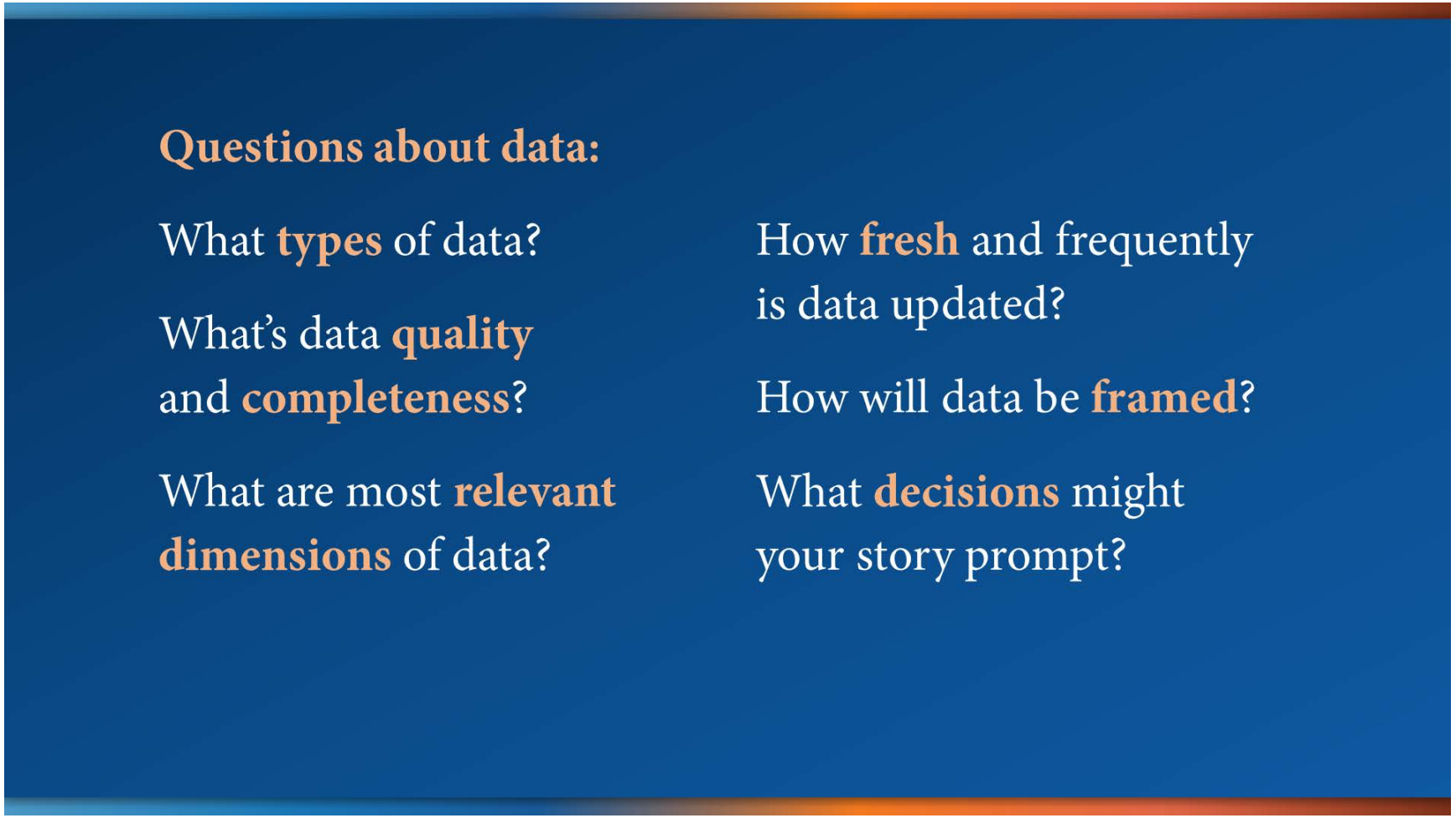
Dashboards and Storytelling with Tableau

Finding the Story

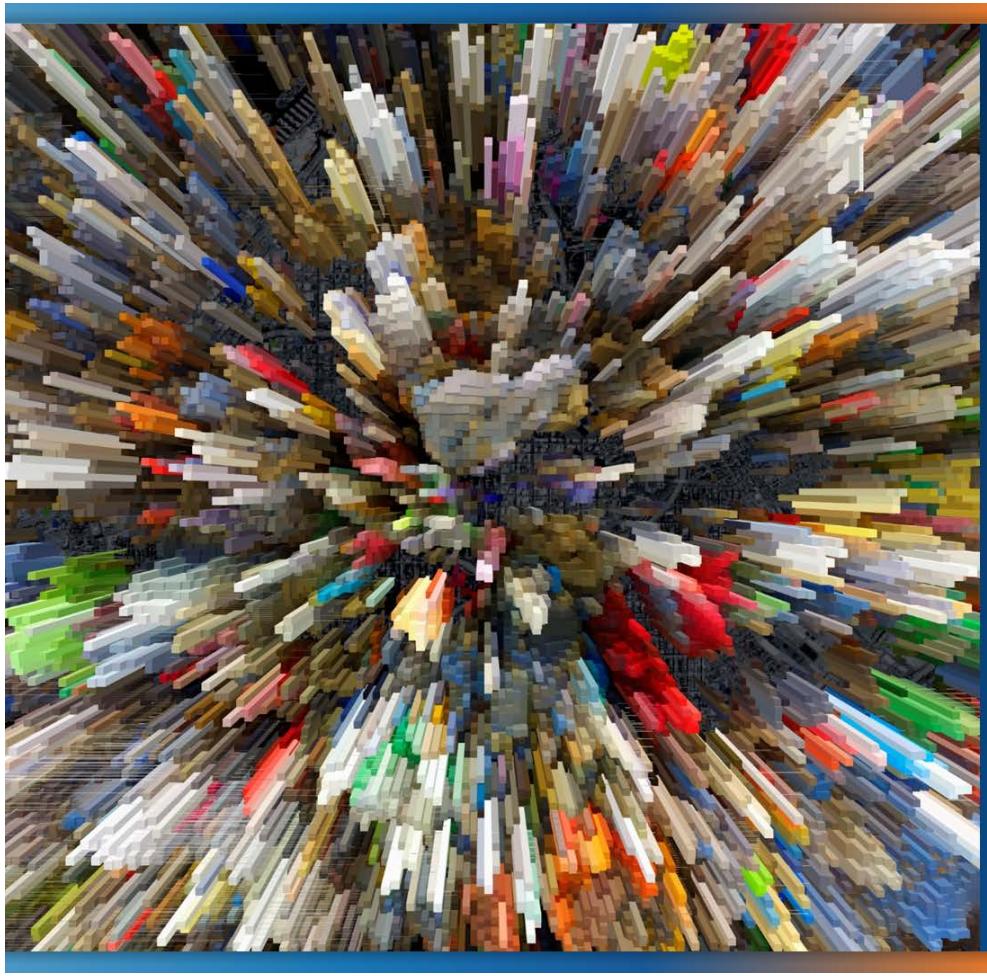


Check expressiveness and effectiveness

Does data accurately **express** the story?

Does presentation style **effectively** convey meaning of data?

This guides decisions to **include** or **exclude**



Ask the right questions at the outset

Not all patterns make true stories

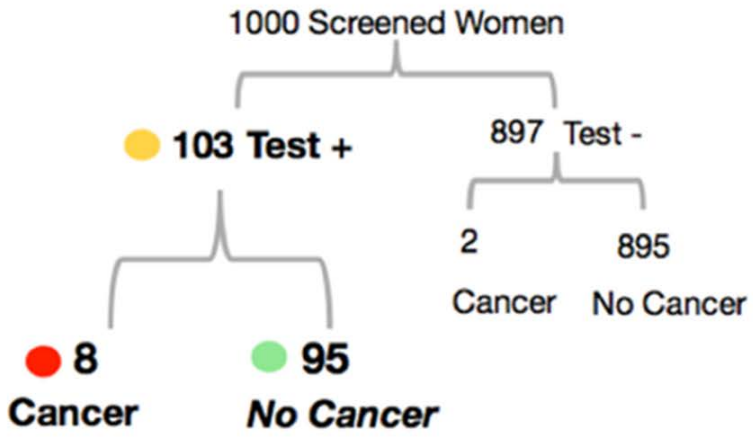
More data, more **risk** of false narratives

It's **dangerous** to reason from insufficient data

Charts and numbers can mislead

Incomplete recall = incorrect conclusion

	Has Breast Cancer	Doesn't Have Breast Cancer	Total
Positive Mammogram	(a)8	(b) 95	103
Negative Mammogram	(c) 2	(d) 895	897
Total	10	990	1000

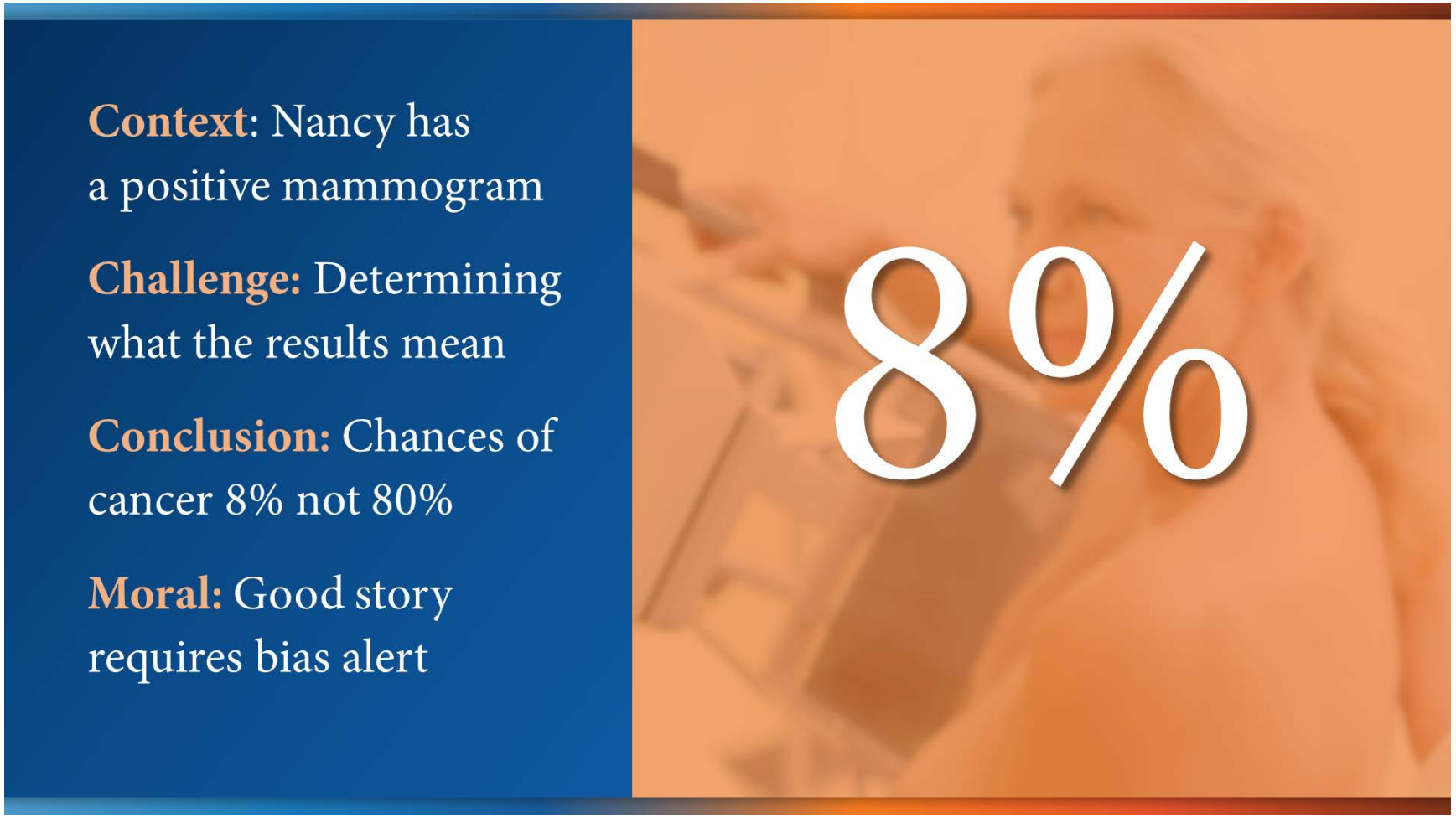


The actual probability that Nancy has cancer is:

P= **8/103** or **7.8%**

…that's not trivial, but it's far less than 80% that the physician initially thought.

Diagram reveals true risk level



Context:
Allied planes shot down at alarming rate

Challenge: Added armor adds weight

Conclusion:
Armor added to areas that appear to sustain the most damage

Where is most useful data to be found?

Beware of **Survivor Bias**

Help audience **recognize** and **reframe** full data set

Context: Planes shot down at alarming rate.

Challenge: Armor adds weight, so be selective about placement. Examine where damage is not survivable.

Conclusion: Based on full data set, add armor to most vulnerable areas.

Data may be incomplete at outset

To tell a true story:

Weigh available data

Work to fill gaps

Relevance may shift with context

TABLE 1 Differential diagnosis for fever, rash, and arthritis in children

Infectious

Viral
- Enteroviruses
- Parvovirus B19 polyarthritis syndrome
- Rubella
- Mumps
- HIV

Bacterial
- Septic arthritis
- Meningococcal meningitis *(Neisseria meningitidis)*
- Gonorrhea *(Neisseria gonorrhoeae)*
- Rocky Mountain spotted fever *(Rickettsia rickettsii)*
- Lyme disease *(Borrelia burgdorferi)*
- Secondary syphilis *(Treponema pallidum)*
- Leptospirosis *(Leptospira interrogans)*
- Rat-bite fever *(Streptobacillus moniliformis, Spirillum minus)*

Rheumatologic/immunologic
- Juvenile idiopathic arthritis
- Systemic lupus erythematosus
- Juvenile dermatomyositis
- Rheumatic fever
- Henoch-Schönlein purpura
- Postinfectious arthritis
- Kawasaki disease
- Serum sickness
- Acute neutrophilic dermatosis (Sweet syndrome)

Genetic
- Familial Mediterranean fever
- Hyperimmunoglobulin-D syndrome
- TNF receptor-1-associated periodic syndrome (TRAPS)

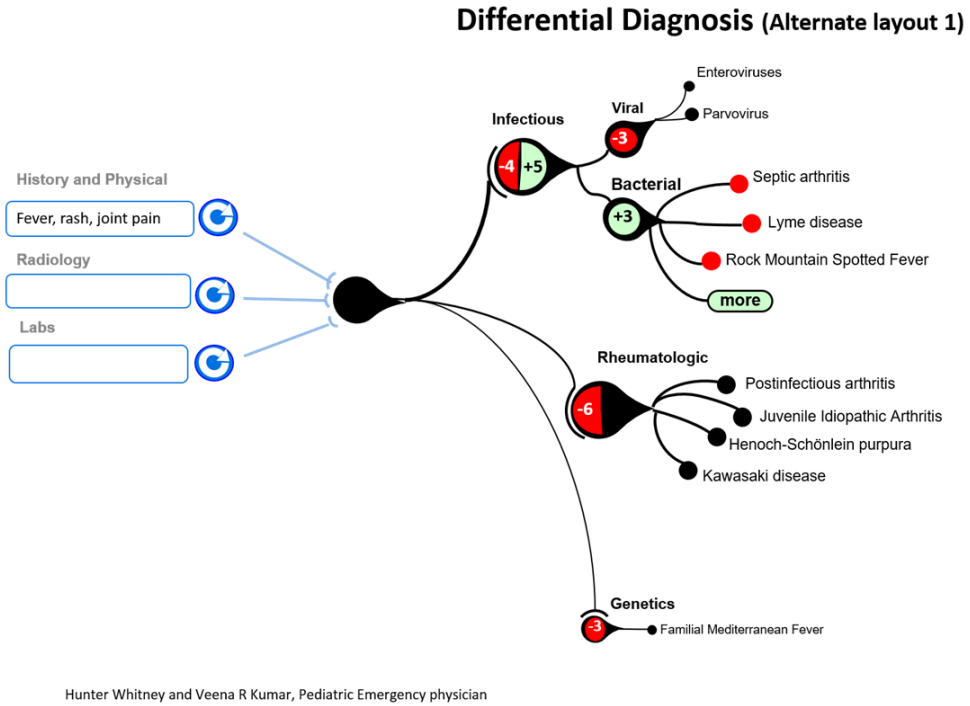
Abbreviations: TNF, tumor necrosis factor.

Consider this case

Hear the case
and presenting details

There is **plenty** of data

But, what is **relevant**?



The difference a diagram can make

Context:
Boy has fever and rash; unknown cause

Challenge:
Finding right diagnosis

Conclusion:
Pet rat bit him and transmitted the infection

All needed data may not be available at start

Irrelevant data could turn out to be **essential**

Data that **may seem true** could be **false**

Test data against various factors and other data

Seeing **different possibilities** can **clarify** thinking